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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,115	03/05/2002	Matthew Dunn		5153

7590 10/20/2003

Attention: Thomas A. O'Rourke  
Wyatt, Gerber & O'Rourke  
99 Park Avenue  
New York, NY 10016

EXAMINER

FLANIGAN, ALLEN J

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 10/20/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/091,115

Applicant(s)

DUNN, MATTHEW

Examiner

Allen J. Flanigan

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-17 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “upper and lower surfaces [having] a surface area greater than the surface area of each of said sidewalls” of claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim 5 is objected to as depending from itself.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no corresponding description in the specification of the “upper” and “lower surface” of the hot air intake passages of claim 2, and the “opposing sidewalls connecting upper and lower surfaces” of claim 3.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to because the description of the invention contains statements that are misleading or simply incorrect. Applicant attempts to apply a concept (fin efficiency) that is inapplicable to the instant invention, because the applicant's invention has nothing which can be considered a fin. The invention is basically an indirect heat exchanger with separating surfaces, but no fins present (cf the heat exchanger of Grill et al., showing applicants' corrugated member 2 defining fluid separating walls, and added corrugated fins 13). It is thus meaningless and misleading to claim "fin efficiency" at unity where no fins are employed. Further, the statement that "the application of the present invention is independent of the convection coefficient and related terms" appears to be incorrect, in implying that the efficiency of the disclosed heat exchanger is not a function of the ordinary factors affecting convective heat transfer efficiency, such as fluid velocity, surface roughness, mixing, *etc.* No fluid heat exchanger is "independent" of convective coefficients.

Claims 14-17 are rejected under 35 U.S.C. 112, first paragraph, for the reasons given above in the objection to the specification.

Regarding claims 16 and 17, the applicant's invention clearly fails to eliminate all "conductive heat transfer losses". For one thing, the separating corrugated member is not a perfect conductor of heat, regardless of how thin it is, and will experience a small but nonzero conductive loss as heat is transmitted across its thickness. Further, the side walls of the applicant's

invention will also conduct heat to some degree, and lose such heat, which might have otherwise been transferred.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to the recitation "has a high aspect ratio . . . compared to the prior art", this recitation is first indefinite because it is not clear what aspect ratio is being referred to (no antecedent basis for "the aspect ratio of the height to width", height and width of what?). Further, the "prior art" encompasses such a wide array of designs that it is utterly meaningless to attempt to draw superlative comparisons ("high", "low").

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher.

Note in regard to claim 5 that the intake and outlet 34, 20 for one set of passages 28 are perpendicular to the flow direction of the other set of passages 14.

In regard to claim 4, claim 2 indicates that the recited upper and lower surfaces separate the flow passages for the heat exchange fluids, and thus these must correspond to the elongate walls shown in Figs. 2 and 4 extending between the sidewalls. Clearly, the elongate portions of wall 16 of Fisher have much greater surface area than the short end portions abutting closure walls 36, 38.

Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Grill.

See, for example, the Fig. 5 embodiment of Grill, which shows a manifold split by divider plate 20.

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stevens shows split manifolds for supplying interdigitated heat exchanger passages. The remaining references of record show various corrugated sheet heat exchangers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (703) 308-1015. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

A handwritten signature in black ink, reading "allen J. Flanigan". The signature is written in a cursive, flowing style.

Allen J. Flanigan  
Primary Examiner  
Art Unit 3743

AJF